Abstract of the Disclosure

This invention is directed to a cyclonic vapor/liquid contacting device and distillation or related mass transfer or heat transfer processes employing its use, such as fluid catalytic cracking. Liquid feed is introduced near the floor of the cyclone via downcomer or plenum. Vapor enters through sieve holes in the bottom of the cyclonic device. Near the floor are angled tabs or vanes that impart a spin to the vapor rising up through the floor. The tabs or vanes mix the liquid and vapor. The liquid is then thrown toward the cyclone wall, where it exits through slots in the wall. A second set of tabs or vanes, located about in the middle of the cyclone, imparts additional spin to the vapor and entrained liquid rising through the cyclone. This improves liquid collection by the cyclone, especially in cases where a heavy liquid load dampens the spin action of the vapor in the base of the cyclone. In another embodiment, there is a non-spinning zone at the floor of the cyclone barrel which permits improved heat transfer between the liquid and vapor. If a non-spinning zone is used, the two sets of vanes or tabs are located at higher elevations within the barrel.